



PHASE 1 ENERGY CONSERVATION MEASURES

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Facilities Management Division
Office of Operations
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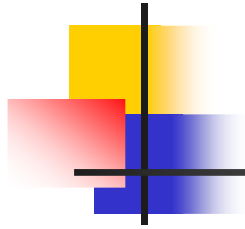
Objectives

- Energy Policy Act of 2005 (EPAct), requires the United States Department of Agriculture to significantly reduce its energy use over the next 10 years.
- Phase 1 will implement four Energy Conservation Measures.



Phase 1 ECMs

- ECM 2 – Kitchen Kettles and Domestic Water Heaters Replacement.
- ECM 12 – Domestic Water Conservation.
- ECM 14 – Weatherization (Exterior Doors).
- ECM 15 – Lighting Renovations.



Construction Schedule

- Awarded (Washington Gas)--October 15, 2008.
- Contract completion-- September 30, 2009.
- Notice to proceed—December 2008.

- ECM 2: Completed by March 2009.
- ECM 12: Completed by September 2009.
- ECM 14: Completed by September 2009.
- ECM 15: Completed by September 2009.



Cost and Savings

- Total cost of Phase 1 ECM project is \$2.9 million.
- USDA will achieve an annual utility and operational savings of approximately \$560,000 a year. The savings will be used to offset the project cost.
- The payback of this investment is ~5.3 years.
- The entire cost is financed through Utility Energy Saving Contract with Washington Gas.



ECM Details

- Washington Gas conducted a preliminary energy audit to evaluate potential energy conservation opportunities in 2007.
- 17 energy conservation measures (ECMs) were recommended.
- USDA selected four of the most feasible ECMs.
- The remaining ECMs will be re-evaluated and will be considered for implementation if the return on investment is less than 10 years.

ECM 2



Kettles and Water Heaters

- Currently, the steam heating system must remain in operation during the summer months to serve the cafeteria's steam kettles and steam hot water heaters. It costs USDA ~\$250,000 to buy steam from GSA during this period (April-Sept.)
- ECM 2 replaces steam kettles and hot water heaters with electrical types.
- The new kettles and water heaters will allow the central steam system to be shut down during the summer and will save USDA ~\$200,000 in annual steam and operating cost.

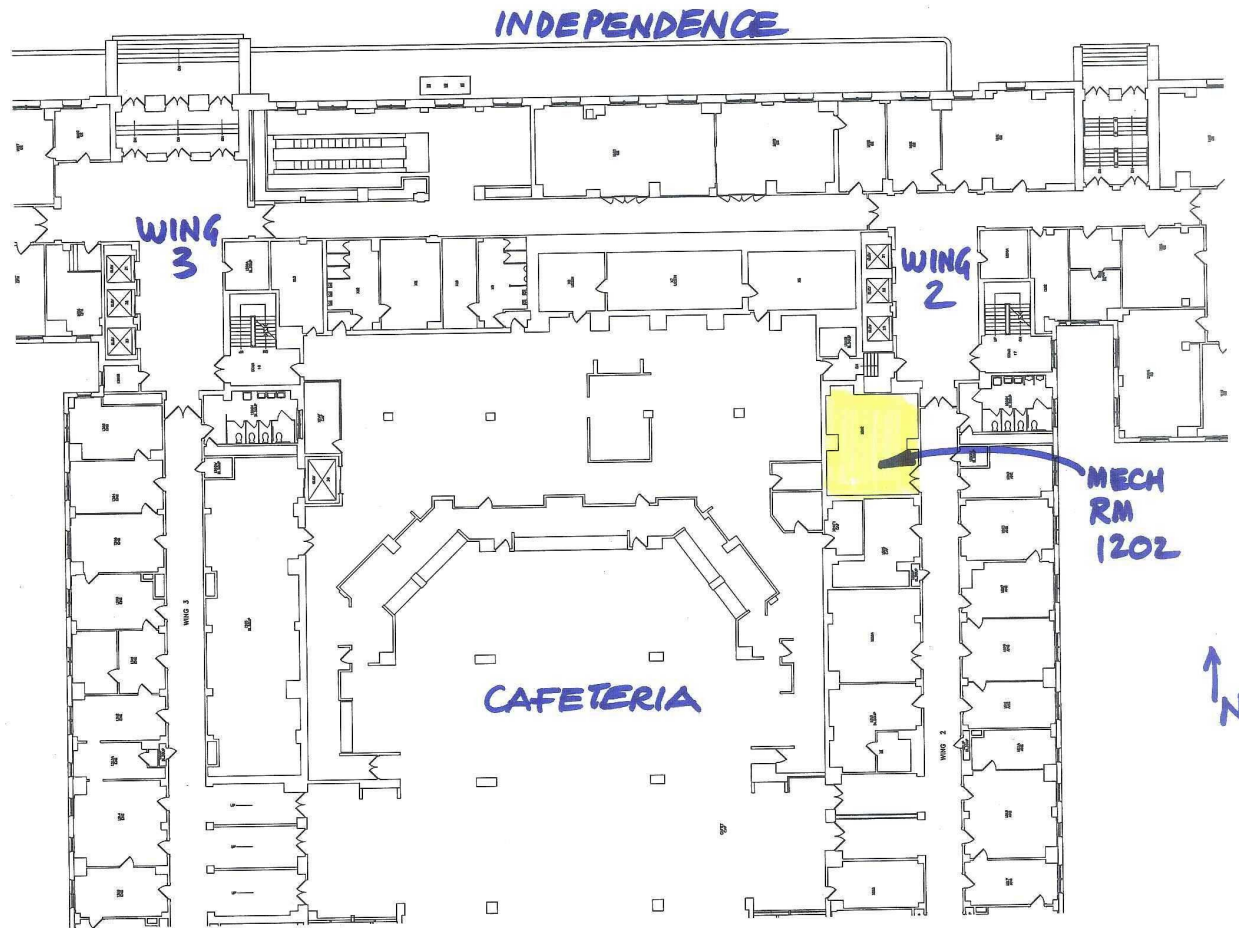
ECM 2 – Large Kettles to be Replaced



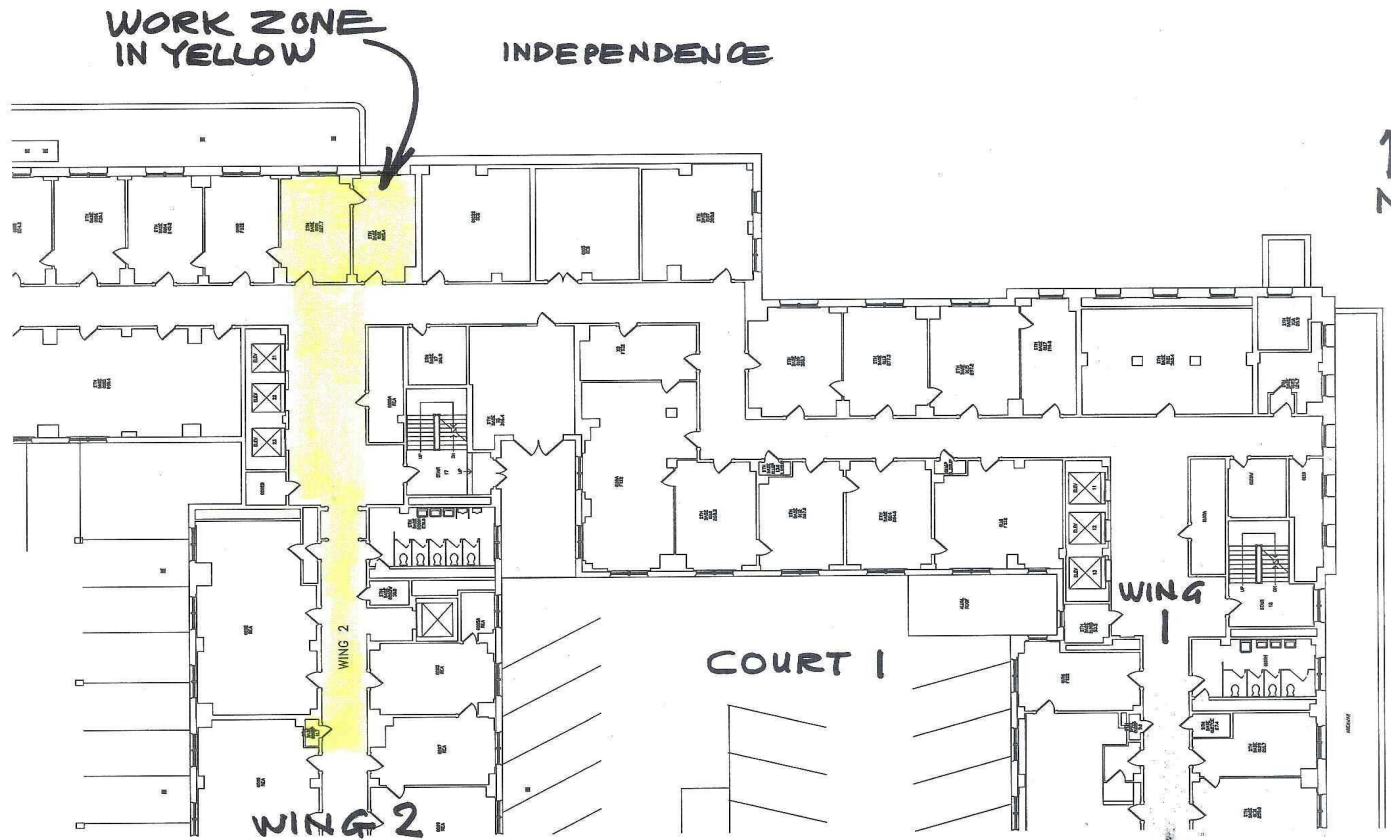
ECM 2 – Small Kettles to be Replaced



ECM 2 - Area of Work on First Floor Wing 2



ECM 2 - Area of Work in Basement Wing 2





ECM 12 – Domestic Water Conservation Measure

- Reduce water consumption by replacing existing plumbing fixtures in restrooms with low water consumption fixtures. Estimated annual savings ~\$100,000.
- Replace 515 toilet bowls with 1.6 gallons per flush (gpf) type.
- 166 of the 515 new toilet bowls will have dual-flush valves, with 1.0 gpf position for liquid and 1.6 gpf position for solids.



ECM 12 – Domestic Water Conservation Measure

- Replace 111 urinal valves with 1 gpf valves.
- Install 722 faucet restrictors (.5 gpm type).
- Work will be performed during normal working hours (6:00am to 6:00pm).
- Impact to building occupants will be minimized through close coordination with the contractor.

ECM 12 - Dual flush valve



Dual-Flush Flushometer

WES-115

► Description

Exposed Water Closet Flushometer with Dual-Flush Feature, for floor mounted or wall hung top spud bowls.

► Flush Cycle

□ Model WES-115 Low Consumption
(Down 1.6 gpt/8.0 Lpf, Up 1.1 gpt/4.2 Lpf)

► Specifications

Dual-Flush, Quiet, Exposed, Diaphragm Type, Chrome Plated Closet Flushometer with the following features:

- Lifting handle UP initiates reduced flush (1.1 gpt/4.2 Lpf), eliminating liquid and paper waste, saving a 1/4-gallon of water
- Pushing handle DOWN initiates full flush (1.6 gpt/8.0 Lpf), eliminating solid waste and paper
- Reduces water volume by up to 30% when activated UPWARDS
- Antimicrobial Coating on Handle protects against germs
- PERMEX™ Synthetic Rubber Diaphragm w/Dual Filtered Fixed Bypass
- Distinctive Green ADA Compliant Metal Non-Hold-Open Handle with Triple Seal Handle Packing signifies Water Conserving Device
- 1" I.P.S. Screwdriver Bak-Chek™ Angle Stop
- Free Spinning Vandal Resistant Stop Cap
- Adjustable Tailpiece
- High Back Pressure Vacuum Breaker Flush Connection with One-piece Bottom Hex Coupling Nut
- Spud Coupling and Flange for 1 1/2" Top Spud
- Sweat Solder Adapter w/Cover Tube and Cast Set Screw Wall Flange
- High Copper, Low Zinc Brass Castings for Dezincification Resistance
- Non-Hold-Open Handle, Fixed Metering Bypass and No External Volume Adjustment to Ensure Water Conservation
- Flush Accuracy Controlled by CID™ Technology
- Diaphragm, Handle Packing, Stop Seat and Vacuum Breaker molded from PERMEX™ Rubber Compound for Chloramine Resistance
- Includes (2) adhesive backed Metal Wall Plates etched w/instructions

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in



ECM 12 – Domestic Water Conservation Measure

- The contractor will replace plumbing fixtures in the restrooms during normal working hours.
- Restrooms will be closed one at a time and restrooms in adjacent wings or floors will remain open.

ECM 14

Building Weatherization

Weatherstrip exterior doors of South and Whitten Buildings.

- To minimize air infiltration.
- Will save approximately \$21,000 in annual heating and cooling cost.

ECM 14 – Typical Gap at Exterior Door





ECM 15 Lighting Renovations

- Replacement & retrofit of approximately 23,000 lighting fixtures in the South and Whitten buildings. Estimated annual savings ~\$230,000.
- Retrofit of existing lighting fixtures will include electronic ballast and 25W T8 lamps.
- Replacement of pendant mounted lighting fixtures with new surface mounted energy efficient lighting fixtures.
- All construction work will be performed after normal working hours.

ECM 15

Environmental Initiatives

- PCB ballasts will be disposed as per environmental regulation and lamps will be recycled.
- To reduce project cost and waste, existing fixture housing will be reused wherever possible.



ECM 15 - FAQ's

- **Who Will Oversee This Project?**

A supervisor from the lighting contractor, WASC Night Services, OO Engineers, and a dedicated USDA guard will be present during construction.

- **Will there be any Changes in the Lighting Level after the Lighting Retrofit?**

In some cases, there may be slight change in the lighting level and also in the lamp color.

- **What Type of Office Preparation Needs to Be Done During Construction Activities?**

Construction work in each office will take approximately one night to complete. Tenants are required to remove and protect all fragile and valuable items in their office during construction.

ECM 15- Replacement of Typical Ballast



ECM 15 - Typical 2'X4' Light Fixtures



ECM 15 - Typical Office Pendant Mounted Light Fixtures To be Replaced





Overall Project Management Goals (All ECMs)

- Minimize disruptions to building occupants.
- Work producing excess noise will be performed after normal working hours.
- Coordinate with affected agencies closely.
- Call USDA Hot Line on 202-720-6858 for complaints and problems.



Communications

- OO Webpage will be updated.
- Signage will be posted at work sites



Project Team

Mike Sazonov, COR/Project Manager

Vera Moreland, Contracting Officer

Project Daily Oversight and Inspection:

- Mike Sazonov & Bahn Lam: Kettles/Water Heater (ECM 2)
- Doreen LaRoche and Crispin Francisco: Water Conservation (ECM 12) and Weatherization (ECM 14)
- P.V. Alexander & Hossein Amini: Lighting (ECM 15)